

State Water Resources Control Board

Division of Drinking Water

June 4, 2019

System No. 3710042

Ms. Sandra Kerl, Acting General Manager
San Diego County Water Authority
610 W. 5th Ave.
Escondido, CA 92025

CITATION NO. 05_14_19C_003
TREATMENT TECHNIQUE VIOLATION FOR FAILURE TO MEET DISINFECTION
CONTACT TIME FOR APRIL 2019

Enclosed is Citation No. 05_14_19C_003 (hereinafter "Citation"), issued to San Diego County Water Authority (hereinafter "SDCWA"). Please note that there are legally enforceable deadlines associated with this Citation.

SDCWA will be billed at the State Water Resources Control Board's (hereinafter "State Water Board") hourly rate for the time spent on issuing this Citation. California Health and Safety Code (hereinafter "CHSC"), Section 116577, provides that a public water system must reimburse the State Water Board for actual costs incurred by the State Water Board for specified enforcement actions including, but not limited to, preparing, issuing and monitoring compliance with a citation.

SDCWA will receive an enforcement invoice from the State Water Board around August 2019. The invoice will contain fees for any enforcement time spent on SDCWA for the previous fiscal year.

A public water system may file a petition with the State Water Board for reconsideration of a citation, order or decision made under authority delegated to an officer or employee of the State Water Board. Petitions must be received by the State Water Board within 30 calendar days of the issuance of the citation, order, or decision.

The date of issuance is the date when the Division mails or serves a copy of the citation, order or decision, whichever occurs first. If the 30th day falls on a Saturday, Sunday, or state holiday, the petition is due the following business day by 5:00 p.m.

E. JOAQUIN ESQUIVEL, CHAIR | EILEEN SOBECK, EXECUTIVE DIRECTOR

Ms. Sandra Kerl
June 4, 2019

San Diego County Water Authority
System No. 3710042

Information regarding filing petitions may be found at:

http://www.waterboards.ca.gov/drinking_water/programs/petitions/index.shtml

If you have any questions regarding this matter, please contact Tuba Ertas or me at (619) 525-4159.

Sincerely,



Sean Sterchi, P.E.
District Engineer

Enclosures: Citation No. 05_14_19C_003

Certified Mail No. 7018 1130 0001 7617 3091

cc: Lars Seifert, Chief, San Diego Department of Environmental Health (via e-mail)
Jim Fisher, Director of O & M (via e-mail)
Brian MacDonald, Chief Operator (via e-mail)
Ashley Dummer, District Engineer, Santa Ana Office (via e-mail)
Impacted Agencies:
Matt Vespi, Interim Pub. Utility Director, City of San Diego (via e-mail)
Isaam Hireish, Deputy Director WS Ops., City of San Diego (via e-mail)
Glenn Pruiem, General Manager, Vallecitos Water District (via e-mail)
Shawn Askine, Water System Supervisor, Vallecitos Water District (via e-mail)
Gary Arant, General Manager, Valley Center Municipal Water District (via e-mail)
Greg Hoyle, Director of Operations, Valley Center MWD (via e-mail)
Clint Baze, Director of Oper., Rincon Del Diablo MWD (ID-A & ID-1) (via e-mail)
Tom Kennedy, General Manager, Rainbow Municipal WD (via e-mail)
Marc Walker, Water Ops. Superint., Rainbow Municipa WD (via e-mail)
Ronald Lutge, Chief Plant Operator, City of Oceanside (via e-mail)
Frank Wolinski, Operations Manager, Vista Irrigation District (via e-mail)
Eric Sanders, Utility Supervisor Water Operations, Carlsbad MWD (via e-mail)
Troy Henry, System Supervisor, Ramona Municipal WD (via e-mail)
Paul Clarke, Director of Operations, Padre Dam MWD (via e-mail)
Mark Watton, General Manager, Otay Water District (via e-mail)
Jake Vaclavek, System Operations Manager, Otay Water District (via e-mail)
Carlos Lugo, General Manager, Helix Water District (via e-mail)
Larry Lyford, Water Treatment Plant Manager, Helix Water District (via e-mail)

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD
DIVISION OF DRINKING WATER

Name of Public Water System: San Diego County Water Authority

Water System No: 3710042

Attention: Sandra Kerl, Acting General Manager
San Diego County Water Authority
610 W. 5th Ave.
Escondido, CA 92025

Issued: June 4, 2019

CITATION FOR NONCOMPLIANCE
CALIFORNIA CODE OF REGULATIONS, TITLE 22
SECTIONS 64652(a), 64654 (a), 64661 (a), Section 64463.4(a)(1)(b)

TREATMENT TECHNIQUE VIOLATION
FOR FAILURE TO MEET DISINFECTION CONTACT TIME

The California Health and Safety Code (hereinafter "CHSC"), Section 116650 authorizes the State Water Resources Control Board (hereinafter "State Water Board") to issue a citation to a public water system when the State Water Board determines that the public water system has violated or is violating the California Safe Drinking Water Act (hereinafter "California SDWA"), (CHSC, Division 104, Part 12, Chapter 4, commencing with Section 116270), or any regulation, standard, permit, or order issued or adopted thereunder.

The State Water Board, acting by and through its Division of Drinking Water (hereinafter "Division") and the Deputy Director for the Division, hereby issues Citation No. 05_14_19C_003 (hereinafter "Citation") pursuant to Section 116650 of the CHSC to San Diego County Water Authority (hereinafter, "SDCWA"), for violation of the California Code of Regulations (hereinafter, "CCR"), Title 22, Sections 64652(a).

A copy of the applicable statutes and regulations are included in Appendix 1, which is attached hereto and incorporated by reference.

STATEMENT OF FACTS

SDCWA is a regional water wholesaler and presently provides 75 to 95 percent of the water used in its service area. SDCWA purchases the substantial majority of its water (both untreated and treated) from the Metropolitan Water District of Southern California (MWD), delivering that water to its 24 member agencies through two aqueducts comprised of a total of five north-south pipelines. This network of large transmission lines currently consists of approximately 300 miles of pipeline varying in diameter from 22 to 108 inches. Treated and untreated water flows by gravity from MWD's Skinner Filtration Plant into San Diego County. SDCWA then delivers the water to its member agencies through 106 metered flow control facilities.

SDCWA owns one treatment plant: Twin Oaks Valley Water Treatment Plant (TOVWTP) in San Marcos. TOVWTP uses submerged membrane filtration followed by ozonation, biologically activated carbon and chlorination and is rated at 100 MGD. The TOVWTP processes are summarized in the following table.

Treatment Process Summary

Treatment Unit	Descriptions
Untreated Water Gravity Feed	Untreated water is gravity fed from the 96-inch Pipeline 5 to a 78-inch line that splits into two 42-inch lines upstream of the Untreated Water Flow Control Facility (UWFCF).

Treatment Unit	Descriptions
Untreated Water Pump Station	The Untreated Water Pump Station (UWPS) draws untreated water from the Twin Oaks Valley Flow Regulating Structure (TOVFRS) and discharges into a 78-inch line that splits into two 42-inch lines upstream of the UWFCF. The UWPS is equipped with four 17,500 gallon per minute (gpm) Weir-Floway vertical turbine pumps operated in parallel. Each vertical turbine pump is driven by a constant-speed motor.
Untreated Water Flow Control Facility	The UWFCF meters and regulates untreated water flows (flow range of 25 - 110 MGD) to the Fine Screening. The UWFCF consist of two equally sized flow trains connected in parallel. Each flow train has a flow range of 25 - 55 MGD and is capable of operating separately, or in parallel combination. Each train consists of an upstream isolation ball valve, an ultrasonic flowmeter, triple offset butterfly valve for flow control, and a butterfly valve for downstream isolation. Return flow from the Residuals-Handling Facility is blended with the influent stream at this facility.
Fine Screening	Untreated water passes through three rotating and self-cleaning S.P.Kinney 457-micron screens and then flows to the submerged membrane filtration facility.
Submerged Membrane Filtration	<p>Membrane filtration is provided by a Zenon ZeeWeed 1000 V3 and V4 system (6 V3 trains and 8 V4 trains, all will be V4 upon completion of the phased V3 train membrane change outs). The V3 modules have a Vsys of 600 ft² for an individual cassette volume of 1,479.52 gallons and the V4 modules have a Vsys of 550 ft² for an individual cassette volume of 1,313.07 gallons.</p> <p>Screened, untreated water enters the submerged membrane filtration (SMF) facility and is distributed to the membrane trains through a feedwater channel and feed piping. The feed channel provides a hydraulic break between the UWFCF and the membrane trains. Feedwater enters the membrane tanks through a bottom sump with a baffle plate and rises through the tank or permeates through the membranes. A permeate pump draws the water through the membrane fibers under vacuum pressure and discharges the filtered water permeate into a common 72-inch permeate header that feeds the ozone contactor facility.</p> <p>The SMF facility is comprised of 14 membrane trains (tanks) arranged in parallel. The tanks are grouped into two banks of seven trains. Each membrane train contains 6 cassettes housing a maximum of 96 modules, in a 12-foot wide by 17-foot long tank. The cassettes are suspended in the tanks from stainless steel beams mechanically attached to the tank walls. Each train has a dedicated permeate pump, associated piping, and support systems (backwash system, chemical metering systems, chemical cleaning systems, air scour system, membrane integrity testing (MIT) system, and instrument air system). The CIP chemicals consist of 12% sodium hypochlorite, 50% citric acid and 40% hydrochloric acid. A vacuum pump system (1 duty, 1 standby) operates intermittently during system operation to keep the permeate piping free of entrained air and to prime the permeate pumps. The SMF also houses the membrane cleaning chemicals: sodium hypochlorite solution (12 – 15%), citric acid, and hydrochloric acid.</p> <p>The filtration process operates in deposition mode with a return flow from the Residuals-Handling system.</p>

Treatment Unit	Descriptions
	An 18,000 gallon submerged membrane backpulse tank was added to supply the backpulse pumps (1 duty, 1 standby) from this tanks as opposed to the permeate header and reduce flow variations to the ozone contactor.
Ozone Contactor Facility	The permeate pumps transfer filtered water to the ozone contact facility. Ozone is injected into the process flow in the front end of the ozone contactor using fine bubble diffusion. The water then flows through the contactors to provide contact time for Giardia and virus inactivation. Two distinct sections are provided within the ozone contactors. The first section, which consists of an inlet channel and three cells configured with over-under baffles, is used for ozone injection and inactivation contact time. The second section, which is constructed with five cells using serpentine baffles, provides hydrogen peroxide injection, contact time for advanced oxidation, and ozone quenching through sodium bisulfite injection.
Biologically Active Carbon Contactors	The ozonated water flows into the Biologically Active Carbon (BAC) contactor and is distributed to the BAC beds. The BAC system is comprised of 10 basins arranged in parallel. The BAC beds are grouped into two banks of five basins. Each bed has 6 feet of activated carbon media and is 24 feet wide by 32 feet long. The beds are similar in design to conventional deep granular media filters. Each bed has a maximum hydraulic loading rate (HLR) of approximately 10 gallons per minute per square foot (gpm/ft ²) and has been designed for a nominal empty bed contact time (EBCT) of 5 minutes. Each bed is monitored for level, flow, headloss, and runtime. These values are used to monitor contactor performance and initiate backwash cycles.
Chemical Mixing Chamber	The chemical mix chamber (CMC) is located immediately downstream of the BAC facility. The CMC is a concrete water-holding basin with two Weir-Floway vertical turbine pumps to promote mixing and serpentine baffles to provide detention time for chemical reactions. Chlorine and ammonia are added at a specific ratio to form chloramines for matching the existing residual disinfectant within Pipeline 4. Sodium hydroxide can be added as necessary to increase the pH of the water in order to reduce corrosivity and help stabilize the chloramine residual. Fluoride can be added to the flow as necessary to meet target fluoride levels. A venturi meter is installed immediately downstream of the CMC basin to monitor treated water flow from the treatment plant.
Clearwells	Following the CMC, treated water will flow into two circular prestressed concrete clearwells. Each clearwell has a capacity of 7.5 MG. The clearwells are hydraulically connected to operate at the same water level and are un-baffled. The primary control of the water surface in the clearwells is the flow control valves in the Treated Water Flow Control Facility (TWFCF). The clearwells have been modified with connections and piping to allow desalinated seawater to mix with the TOVWTP treated surface water prior to distribution to the TWFCF.
Treated Water Flow Control Facility	The TWFCF monitors and controls treated water from the TOVWTP clearwells to Pipeline 4, corresponding to distribution system demand rates of 25 to 174 MGD. The TWFCF consists of one 42-inch diameter and one 54-inch diameter train operating in parallel. Each train consists of an upstream isolation ball valve, an ultrasonic flowmeter, a butterfly valve for flow control, and a butterfly valve for downstream isolation. Each flow train is capable of operating separately or in parallel.
Residuals-Handling System	The Residuals-Handling system receives waste washwater generated by the various sources in the water treatment process, provides solids/liquid separation, and returns the treated waste washwater back to the UWFCF. The Residuals-Handling system consists of the following facilities: Equalization Basins, Clarifiers, Gravity Thickeners, and Centrifuges. The

Treatment Unit	Descriptions
	polymer storage and feed systems used for the Residuals-Handling System are housed in the dewatering building.
Chemical Facility A	Chemical Facility A receives, stores, and provides fluorosilicic acid, aqueous ammonia, ferric chloride, hydrogen peroxide, sodium bisulfite, and sodium hydroxide to TOVWTP chemical injection sites.
Chemical Facility B	Chemical Facility B provides the primary storage, generation, and distribution of the 0.8-percent (as chlorine) sodium hypochlorite solution used at the TOVWTP.
Chloramine Boost Facilities	The Chloramine Boost Facilities provide for the mixing and injection of sodium hypochlorite and aqueous ammonia to desalinated water or to combined Clearwell effluent for the purpose of boosting chloramine residual. Facilities also include water quality monitoring.

TOVWTP is fully automated with automatic shutdowns based on a series of water quality parameters identified in the Operations Plan. Operators alerted of alarm conditions can view conditions and trends, and take appropriate actions remotely through the plant SCADA system.

The Zenon ZeeWeed 1000 V4 series membranes were granted conditional log removal credit (LRC) for 4-log *Cryptosporidium*, 4-log *Giardia*, and 3.5-log virus removal via the Division's Alternative Filtration Technology (AFT) demonstration process. The demonstration was performed with a maximum recovery of 95 percent, a maximum TMP of 12 psig, a maximum flux of 55 gfd, and membrane integrity demonstrated by daily pressure decay test (PDT). The TOVWTP operates in deposition mode with a recovery rate goal of less than or equal to 97 percent, a maximum instantaneous flux of 42 gfd, a maximum TMP of 13 psig, and will perform daily PDT for direct integrity testing.

In order to gain approval to operate with a lower LRC or 3-log *Giardia* and *Cryptosporidium*, GE/Zenon performed additional demonstration studies on the ZeeWeed 1000 V3 & V4 membranes that verified a minimum of 3-log *Cryptosporidium* and *Giardia* and minimum of 2-log virus reduction could be achieved provided the level of care of the membranes resulted in a calculated LRV of 3.2 log or greater. Additionally, the TOVWTP primary disinfection system is operated to meet a minimum of 0.5-log *Giardia* and 2-log virus inactivation to provide multi barrier treatment and achieve the minimum virus inactivation requirements. Consequently, TOVWTP must be operated with a UCL of no less

1 than 3.2 to ensure Giardia multi-barrier and overall virus reduction requirements
2 of the surface water treatment rule are met.

3 The ozone system has been sized to provide the required ozone capacity for
4 inactivation of 0.5-log Giardia and 2-log virus at all times, as well as taste and
5 odor control when needed for a flow rate of 100 MGD. The Ozone Contactor
6 Facility consists of two parallel trains, including two Liquid Oxygen (LOX)
7 storage tanks, two vaporizers, two ozone generators, and a 2-train contactor.
8 Each ozone generator has a maximum production capacity of 1,800 lb/day, but if
9 both generators are required to be in operation at the same time, a maximum of
10 2,400 lb/day is deliverable through the ozone piping. The two 15,000-gallon LOX
11 storage tanks and the two vaporizers are located on a pad adjacent to the ozone
12 contactor. The LOX storage is sufficient for 30 days at average daily demand.

13 CCR, Title 22 Section 64652 (a) requires that a supplier using an approved
14 surface water shall provide multibarrier treatment that meets the requirements of
15 Chapter 17 and reliably ensures at least, between a point where the raw water is
16 not subject to recontamination by surface water runoff and a point downstream
17 before or at the first customer:

18 (1) A total of 99.9 percent reduction of Giardia lamblia cysts through filtration and
19 disinfection;

20 (2) A total of 99.99 percent reduction of viruses through filtration and
21 disinfection; and

22 (3) A total of 99 percent removal of Cryptosporidium through filtration.

23 CCR, Title 22, Section 64654 (a) requires that all approved surface water utilized
24 by a supplier shall be provided with continuous disinfection treatment sufficient
25 to insure that the total treatment process provides inactivation of Giardia lamblia
26 cysts and viruses, in conjunction with the removals obtained through filtration, to
27 meet the reduction requirements specified in section 64652(a).

28 CCR, Title 22, Section 64661 (a) requires that a supplier shall operate each
29 treatment plant in accordance with an operations plan that has been approved
30 by the State Board.

CCR, Title 22 Section 64463.4(a)(1)(b) requires a water system to give public notice pursuant to this section if any of the following occurs:

(1) Any violation of the MCL, MRDL, and treatment technique requirements.

On April 21, 2019: A second ozone contactor was placed into operation at 8.30 pm due to an increase in water treatment demand from 54-MGD to 68-MGD. Prior to the flow increase, only one ozone contactor was in operation. The influent valve to the second contactor failed to fully open and as a result the majority of the flow was sent to only one contactor.

The incident was discovered at 12.50 pm on April 22, 2019 and measures were taken to correct the plant's operations. During the incident, the total plant flow was as high as 75 MGD, with only 8 to 10 MGD going to the second contactor, and the lowest calculated inactivation for the first contactor was 0.17-Log *Giardia* and 1.35-Log virus. The minimum inactivation requirements for the ozone system are 0.5-log *Giardia* and 2-log virus.

On April 22, 2019: The Division was contacted by treatment plant staff and had a conference call meeting with the chief operator and SDCWA. The Division considered the membrane filtration removal credits of 3-log *Giardia* and 2-log virus, and calculated CT for other segments of the treatment plant, including raw water free chlorine disinfection, Chemical Mix Chamber free chlorine disinfection, and downstream total chloramine disinfection. The Division determined that the overall minimum pathogen reduction requirements of the Surface Water Treatment Rule were likely met; therefore, a Tier 1 Public Notification was not warranted for the April 21/22, 2019 Treatment Technique violation.

On April 25, 2019: The chief operator submitted an incident report (in Appendix 2) along with procedures to prevent reoccurrence of this failure to the Division.

On April 30, 2019: The chief operator provided additional water treatment plant programming actions (hereinafter PLC upgrades) to be taken to prevent a similar incident via email. An excerpt of that email is copied below:

I. Creating and normalizing the ratio.

1. The target ratio will be ozone gas flow which is fed toward one contactor divided by residual ozone concentration at location C1 or C-End at same contactor. Units are [SCFM]/[mg/L].

2. Maximum ozone gas flow can be 300 SCFM. To convert in %, SDCWA will multiply measured value by [100/300].

3. Maximum ozone concentration at location C1 can be 3.0 mg/L. To convert in % SDCWA will multiply measured value by [100/3].

4. After conversion the ratio [Ozone Gas Flow]/[Ozone Conc] in one contactor will be in units of [%]/[%] or unitless.

II. Creating alarm

1. Take ratio from Contactor 1 and divide by same ratio from Contactor 2.

2. When both Contactors are running, if the result is in the range 0.8-1.2 mg/L, SDCWA will have acceptable conditions for disinfection.

3. When both Contactors are running, and result is outside the range 0.8-1.2 mg/L, SDCWA will create alarm.

III. Corrective actions

1. Check position of inlet and outlet gates for both contactors.

2. Check position of manual isolation valves for ozone flow toward all diffuser headers. Ensure equal position between both contactors.

3. Check last calibration date for ozone sensors at location C1 for both contactors. Consider re-calibration.

DETERMINATIONS

Based on the above Statement of Facts, the Division has determined that SDCWA is in violation of CCR, Title 22, Sections 64654 (a), 64652 (a), 64463.4 (a)(1)(b) and 64661.

SDCWA is in violation of CCR, Title 22 Section 64652 (a), in that the water system has failed to provide multibarrier treatment that meets the requirements of Chapter 17.

SDCWA is in violation of CCR, Title 22 Section 64654 (a), in that the water system has failed to provide continuous disinfection treatment sufficient to insure that the total treatment process provided inactivation of Giardia and viruses, in conjunction with the removals obtained through filtration, to meet the reduction requirements specified in section 64652(a) at the compliance points for the plant.

SDCWA is in violation of CCR, Title 22 Section 64661, in that the water system has failed to operate the treatment plant in accordance with the operations plan that has been approved by the State Water Board and also failed to comply with permit provision #16 of Permit No. 05-14-15P-009, issued on October 9, 2015.

DIRECTIVES

SDCWA is hereby directed to take the following actions:

1. Within 60 days of the date of this citation, SDCWA must submit to the Division a revised Operations Plan that includes system and operational procedure upgrades that will ensure a similar incident as described in this citation will not occur again. The revised Operations Plan must include the PLC upgrades for the implementation of a CT ratio parameter proposed by the chief operator and summarized in the Statement of Facts above.

2. Within 30 days of issuance of this Citation, SDCWA must implement the PLC upgrades as summarized in the Statement of Facts section above.

3. Within 30 days of issuance of this Citation, SDCWA must give public notification of the Treatment Technique violation to all customers who received or may have received water produced by TOVWTP from April 21, 2019 at 8:30

pm to April 22, 2019 at 12:50 PM in accordance with CCR, Title 22, Section 64463.4 and the Spanish language public notification requirements of CCR, Title 22 Section 64465(c)(2). Public notice must be via, as a minimum, one of the following forms:

(A) Mail or direct delivery to each customer receiving a bill, including those that provide their drinking water to others (e.g., schools or school systems, apartment building owners, or large private employers), and other service connections to which water is delivered by the water system; and

(B) Use of one or more of the following methods to reach persons not likely to be reached by a mailing or direct delivery (renters, university students, nursing home patients, prison inmates, etc.):

1. Publication in a local newspaper;

The required public notification may be done by SDCWA or a combined effort of the SDCWA and effected member agencies. A public notification plan and draft notification(s) must be submitted to the Division for review and approval prior to conducting public notification.

4. In accordance with CCR, Title 22, Section 64469 (d), within 10 days of conducting public notification, SDCWA must provide to the Division certification of public notification using the enclosed form (Appendix 3).

5. SDCWA must complete and return to the State Water Board the "Notification of Receipt" form (Appendix 4) within 7 days of issuance of this Citation.

Completion of this form confirms that SDCWA has received this Citation and understands that it contains legally enforceable directive(s) with due dates.

6. By July 1, 2020, SDCWA and effected member agencies must report the Treatment Technique violation in the SDCWA's and each effected member agencies' 2019 Consumer Confidence Report (CCR). Draft CCR's must receive written Division approval prior to distribution.

All submittals required by this Citation must be electronically submitted to the Division at the following address. The subject line for all electronic submittals corresponding to this Citation must include the following information: San Diego County Water Authority, 92025, Citation No. 05-14-19C-003 and title of the document being submitted.

Sean Sterchi

DDWSanDiego@Waterboards.ca.gov

The State Board reserves the right to make such modifications to this Citation as it may deem necessary to protect public health and safety. Such modifications may be issued as amendments to this Citation and must be effective upon issuance.

Nothing in this Citation relieves SDCWA of its obligation to meet the requirements of the California SDWA (CHSC, Division 104, Part 12, Chapter 4, commencing with Section 116270), or any regulation, standard, permit or order issued or adopted thereunder.

PARTIES BOUND

This Citation must apply to and be binding upon SDCWA, its owners, shareholders, officers, directors, agents, employees, contractors, successors, and assignees.

SEVERABILITY

The requirements of this Citation are severable, and SDCWA must comply with each and every provision thereof notwithstanding the effectiveness of any provisions.

FURTHER ENFORCEMENT ACTION

The California SDWA authorizes the State Water Board to: issue a citation or order with assessment of administrative penalties to a public water system for violation or continued violation of the requirements of the California SDWA or any regulation, permit, standard, citation, or order issued or adopted thereunder

cc: Lars Seifert, Chief, San Diego Department of Environmental Health
(via e-mail)

- 1) Applicable Statutes and Regulations
- 2) Incident Report
- 3) Proof of Notification
- 4) Notification of Receipt

CERTIFIED MAIL NO. 7018 1130 0001 7617 3091

**APPENDIX 1. APPLICABLE STATUTES AND REGULATIONS FOR
CITATION NO. 05-14-19C-003**

NOTE: The following language is provided for the convenience of the recipient, and cannot be relied upon as the State of California's representation of the law. The published codes are the only official representation of the law. Regulations related to drinking water are in Titles 22 and 17 of the California Code of Regulations. Statutes related to drinking water are in the Health & Safety Code, the Water Code, and other codes.

California Health and Safety Code (CHSC):

§Section 116271 states in relevant part:

(a) The State Water Resources Control Board succeeds to and is vested with all of the authority, duties, powers, purposes, functions, responsibilities, and jurisdiction of the State Department of Public Health, its predecessors, and its director for purposes of all of the following:

(1) The Environmental Laboratory Accreditation Act (Article 3 (commencing with Section 100825) of Chapter 4 of Part 1 of Division 101).

(2) Article 3 (commencing with Section 106875) of Chapter 4 of Part 1.

(3) Article 1 (commencing with Section 115825) of Chapter 5 of Part 10.

(4) This chapter and the Safe Drinking Water State Revolving Fund Law of 1997 (Chapter 4.5 (commencing with Section 116760)).

(5) Article 2 (commencing with Section 116800), Article 3 (commencing with Section 116825), and Article 4 (commencing with Section 116875) of Chapter 5.

(6) Chapter 7 (commencing with Section 116975).

(7) The Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Division 43 (commencing with Section 75001) of the Public Resources Code).

(8) The Water Recycling Law (Chapter 7 (commencing with Section 13500) of Division 7 of the Water Code).

(9) Chapter 7.3 (commencing with Section 13560) of Division 7 of the Water Code.

(10) The California Safe Drinking Water Bond Law of 1976 (Chapter 10.5 (commencing with Section 13850) of Division 7 of the Water Code).

(11) Wholesale Regional Water System Security and Reliability Act (Division 20.5 (commencing with Section 73500) of the Water Code).

(12) Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Division 26.5 (commencing with Section 79500) of the Water Code).

(b) The State Water Resources Control Board shall maintain a drinking water program and carry out the duties, responsibilities, and functions described in this section. Statutory reference to "department," "state department," or "director" regarding a function transferred to the State Water Resources Control Board shall refer to the State Water Resources Control Board. This section does not impair the authority of a local health officer to enforce this chapter or a county's election not to enforce this chapter, as provided in Section 116500.

(k)(1) The State Water Resources Control Board shall appoint a deputy director who reports to the executive director to oversee the issuance and enforcement of public water system permits and other duties as appropriate. The deputy director shall have public health expertise.

(2) The deputy director is delegated the State Water Resources Control Board's authority to provide notice, approve notice content, approve emergency notification plans, and take other action pursuant to Article 5 (commencing with Section 116450), to issue, renew, reissue, revise, amend, or deny any public water system permits pursuant to Article 7 (commencing with Section 116525), to suspend or revoke any public water system permit pursuant to Article 8 (commencing with Section 116625), and to issue citations, assess penalties, or issue orders pursuant to Article 9 (commencing with Section 116650). Decisions and actions of the deputy director taken pursuant to Article 5 (commencing with Section 116450) or Article 7 (commencing with Section 116525) are deemed decisions and actions taken, but are not subject to reconsideration, by the State Water Resources Control Board. Decisions and actions of the deputy director taken pursuant to Article 8 (commencing with Section 116625) and Article 9 (commencing with Section 116650) are deemed decisions and actions taken by the State Water Resources Control Board, but any aggrieved person may petition the State Water Resources Control Board for reconsideration of the decision or action. This subdivision is not a limitation on the State Water Resources Control Board's authority to delegate any other powers and duties.

§Section 116650 states in relevant part:

- (a) If the State Water Board determines that a public water system is in violation of this chapter or any regulation, permit, standard, citation, or order issued or adopted thereunder, the State Water Board may issue a citation to the public water system. The citation shall be served upon the public water system personally or by certified mail. Service shall be deemed effective as of the date of personal service or the date of receipt of the certified mail. If a person to whom a citation is directed refuses to accept delivery of the certified mail, the date of service shall be deemed to be the date of mailing.
- (b) Each citation shall be in writing and shall describe the nature of the violation or violations, including a reference to the statutory provision, standard, order, citation, permit, or regulation alleged to have been violated.
- (c) A citation may specify a date for elimination or correction of the condition constituting the violation.
- (d) A citation may include the assessment of a penalty as specified in subdivision (e).
- (e) The State Water Board may assess a penalty in an amount not to exceed one thousand dollars (\$1,000) per day for each day that a violation occurred, and for each day that a violation continues to occur. A separate penalty may be assessed for each violation and shall be in addition to any liability or penalty imposed under any other law.

§64652. Treatment Technique Requirements and Compliance Options.

(a) A supplier using an approved surface water shall provide multibarrier treatment that meets the requirements of this chapter and reliably ensures at least, between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer:

- (1) A total of 99.9 percent reduction of *Giardia lamblia* cysts through filtration and disinfection;
- (2) A total of 99.99 percent reduction of viruses through filtration and disinfection; and
- (3) A total of 99 percent removal of *Cryptosporidium* through filtration.

§64654. Disinfection.

(a) All approved surface water utilized by a supplier shall be provided with continuous disinfection treatment sufficient to insure that the total treatment process provides inactivation of *Giardia lamblia* cysts and viruses, in conjunction with the removals obtained through filtration, to meet the reduction requirements specified in section 64652(a).

§64661. Operations Plan.

(a) A supplier shall operate each treatment plant in accordance with an operations plan that has been approved by the State Water Board. With a permit application for a new treatment plant or modification to an existing treatment plant, the supplier shall submit for State Water Board review the operations plan to determine if it includes those items required in subsection (b). The State Water Board shall review the operations plan to determine if it includes those items required in subsection (b). The operations plan shall be designed to produce the optimal water quality from the treatment process. The supplier shall operate its treatment plant in accordance with the approved plan.

(b) The operations plan shall consist of a description of the utility's treatment plant performance monitoring program, unit process equipment maintenance program, filter media inspection program, operating personnel, including numbers of staff, certification levels and responsibilities; how and when each unit process is operated; laboratory procedures; procedures used to determine chemical dose rates; records; response to plant and watershed emergencies; and reliability features.

§64463.4. Tier 2 Public Notice.

(a) A water system shall give public notice pursuant to this section if any of the following occurs:

(1) Any violation of the MCL, MRDL, and treatment technique requirements, except:

(A) Where a Tier 1 public notice is required under section 64463.1; or

(B) Where the State Board determines that a Tier 1 public notice is required, based on potential health impacts and persistence of the violations;

(b) A water system shall give the notice as soon as possible within 30 days after it learns of a violation or occurrence specified in subsection (a); except that the water system may request an extension of up to 60 days for providing the notice. This extension would be subject to the State Board's written approval based on the violation or occurrence having been resolved and the State Board's determination that public health and welfare would in no way be adversely affected. In addition, the water system shall:

(1) Maintain posted notices in place for as long as the violation or occurrence continues, but in no case less than seven days;

(2) Repeat the notice every three months as long as the violation or occurrence continues. Subject to the State Board's written approval based on its determination that public health would in no way be adversely affected, the water system may be allowed to notice less frequently but in no case less than once per year. No allowance for reduced frequency of notice shall be given in the case of a total coliform MCL violation or violation of a Chapter 17 treatment technique requirement; and

(3) For turbidity violations pursuant to sections 64652.5(c)(2) and 64653(c), (d) and (f), as applicable, a water system shall consult with the State Board as soon as possible within 24 hours after the water system learns of the violation to determine whether a Tier 1 public notice is required. If consultation does not take place within 24 hours, the water system shall give Tier 1 public notice within 48 hours after learning of the violation.

(c) A water system shall deliver the notice, in a manner designed to reach persons served, within the required time period as follows:

(1) Unless otherwise directed by the State Board in writing based on its assessment of the violation or occurrence and the potential for adverse effects on public health and welfare, community water systems shall give public notice by;

(A) Mail or direct delivery to each customer receiving a bill including those that provide their drinking water to others (e.g., schools or school systems, apartment building owners, or large private employers), and other service connections to which water is delivered by the water system; and

(B) Use of one or more of the following methods to reach persons not likely to be reached by a mailing or direct delivery (renters, university students, nursing home patients, prison inmates, etc.):

1. Publication in a local newspaper;

2. Posting in conspicuous public places served by the water system, or on the Internet; or

3. Delivery to community organizations.

(2) Unless otherwise directed by the State Board in writing based on its assessment of the violation or occurrence and the potential for adverse effects on public health and welfare, noncommunity water systems shall give the public notice by:

(A) Posting in conspicuous locations throughout the area served by the water system; and

(B) Using one or more of the following methods to reach persons not likely to be reached by a public posting:

1. Publication in a local newspaper or newsletter distributed to customers;
2. E-mail message to employees or students;
3. Posting on the Internet or intranet; or
4. Direct delivery to each customer.

§64465. Public Notice Content and Format.

(a) Each public notice given pursuant to this article, except Tier 3 public notices for variances and exemptions pursuant to subsection (b), shall contain the following:

(1) A description of the violation or occurrence, including the contaminant(s) of concern, and (as applicable) the contaminant level(s);

(2) The date(s) of the violation or occurrence;

(3) Any potential adverse health effects from the violation or occurrence, including the appropriate standard health effects language from appendices 64465-A through G;

(4) The population at risk, including subpopulations particularly vulnerable if exposed to the contaminant in drinking water;

(5) Whether alternative water supplies should be used;

(6) What actions consumers should take, including when they should seek medical help, if known;

(7) What the water system is doing to correct the violation or occurrence;

(8) When the water system expects to return to compliance or resolve the occurrence;

(9) The name, business address, and phone number of the water system owner, operator, or designee of the water system as a source of additional information concerning the public notice;

(10) A statement to encourage the public notice recipient to distribute the public notice to other persons served, using the following standard language: "Please share this information with all the other people who drink this water, especially those who may not have received this public notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this public notice in a public place or distributing copies by hand or mail."; and

(11) For a water system with a monitoring and testing procedure violation, this language shall be included: "We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. During [*compliance period dates*], we [*did not monitor or test*' or '*did not complete all monitoring or testing*'] for [*contaminant(s)*], and therefore, cannot be sure of the quality of your drinking water during that time."

(b) A Tier 3 public notice for a water system operating under a variance or exemption shall include the elements in this subsection. If a water system has violated its variance or exemption conditions, the public notice shall also include the elements in subsection (a).

(1) An explanation of the reasons for the variance or exemption;

(2) The date on which the variance or exemption was issued;

(3) A brief status report on the steps the water system is taking to install treatment, find alternative sources of water, or otherwise comply with the terms and schedules of the variance or exemption; and

(4) A notice of any opportunity for public input in the review of the variance or exemption.

(c) A public water system providing notice pursuant to this article shall comply with the following multilingual-related requirements:

(1) For a Tier 1 public notice:

(A) The notice shall be provided in English, Spanish, and the language spoken by any non-English-speaking group exceeding 10 percent of the persons served by the public water system, and the notice shall include a telephone number or address where such individuals may contact the public water system for assistance; and

(B) If any non-English-speaking group exceeds 1,000 persons served by the public water system, but does not exceed 10 percent served, the notice shall include information in the appropriate language(s) regarding the importance of the notice, and the telephone number or address where such individuals may contact the public water system to obtain a translated copy of the notice from the public water system or assistance in the appropriate language;

(2) For a Tier 2 or Tier 3 public notice:

(A) The notice shall contain information in Spanish regarding the importance of the notice, or contain a telephone number or address where Spanish-speaking residents may contact the public water system to obtain a translated copy of the notice or assistance in Spanish; and

(B) When a non-English speaking group other than Spanish-speaking exceeds 1,000 residents or 10 percent of the residents served by the public water system, the notice shall include:

1. Information in the appropriate language(s) regarding the importance of the notice; or
2. A telephone number or address where such residents may contact the public water system to obtain a translated copy of the notice or assistance in the appropriate language; and

(3) For a public water system subject to the Dymally-Alatorre Bilingual Services Act, Chapter 17.5, Division 7, of the Government Code (commencing with section 7290), meeting the requirements of this Article may not ensure compliance with the Dymally-Alatorre Bilingual Services Act.

(d) Each public notice given pursuant to this article shall:

(1) Be displayed such that it catches people's attention when printed or posted and be formatted in such a way that the message in the public notice can be understood at the eighth-grade level;

(2) Not contain technical language beyond an eighth-grade level or print smaller than 12 point; and

(3) Not contain language that minimizes or contradicts the information being given in the public notice.

§64469. Reporting Requirements.

(c) Within 10 days of giving initial or repeat public notice pursuant to Article 18 of this Chapter, except for notice given under section 64463.7(d), each water system shall submit a certification to the State Board that it has done so, along with a representative copy of each type of public notice given.

APPENDIX 2
INCIDENT REPORT



Twin Oaks Valley Water Treatment Plant
3566 North Twin Oaks Valley Road
San Marcos, CA 92069
Tel 760-752-7300
Cell 256-344-0744

April 25, 2019

Mr. Sean Sterchi, P.E.
District Engineer
California State Water Resources Control Board-Division Drinking Water
San Diego District
1350 Front Street, Room 2050
San Diego, CA 92101

Subject: San Diego County Water Authority, PWSID# CA3710042
Twin Oaks Valley Water Treatment Plant
Incident Report – Less Than Required Ozonation Inactivation

Mr. Sterchi,

This correspondence serves as a follow-up incident report for the events of April 21, 2019, during which at approximately 8:30 p.m. a second ozone contactor was placed into operation due to an increase in water treatment demand from 54-MGD to 68-MGD. Typically, normal protocol entails placing the second ozone contactor into service whenever the treated flow demand is > 55-MGD.

The following are the required steps included in Standard Operating Procedure (SOP) for this process:

- Divert all treated water flow from the clearwells to the SDCWA Raw Water Twin Oaks Valley Flow Regulating Structure (TOVFRS) by placing all Biologically Active Carbon Contactors (BACC's) offline resulting in an overflow of entire flow to TOVFRS.
- Open the off-line ozone contactor influent and effluent valves to allow flow through contactor.
- Initiate ozone dosing to contactor via SCADA by selecting the off-line contactor to transition on-line. Once this command is initiated, which ever flow meter measuring the entire plant flow has been selected (raw water influent flow from Facility-11 or treated water flow from the Chemical Mix Chamber) is divided 50/50 to both contactors for ozone dose via flow pacing.
- After establishing the required ozone inactivation for Giardia and Virus, slowly return treated water flow to the clearwells by returning the BACC's from Off-line to On-line

Until the event of April 21, 2019, this procedure had functioned without incident. The circumstances surrounding the failure on the evening of April 21, 2019 are identified in the following bullet items:

- The on-duty operator performing this task did not visually monitor the opening of the valves ensuring both the influent and effluent valves had fully opened allowing full flow through the contactor.
- An OPEN command was initiated to the actuator and the on-duty operator assumed it would fully open correctly however the actuator only opened approximately 8-inches instead of the required 53-inches.

- This condition resulted in an estimated flow of between 8 to 10-MGD through the contactor, with the majority of the 68-MGD flowing through the original in-service ozone contactor. *Note: Flow data indicate periods of 75-MGD were also experienced during this time.*
- As a result of this valve failure, the flow value was mathematically split via SCADA 50/50 between the two contactors which resulted in the contactor receiving the bulk of the flow incorrectly dosing the actual flow.
- This situation existed from 9:00 SPM April 21, 2019 until the failed actuator was observed by a second on-duty operator at approximately 12:50 PM April 22, 2019.
- Total plant treated water flow was adjusted to approximately 55-MGD at 9:00 AM April 22, 2019 with a reduced Treated Water Flow demand.

During this approximately 12-hour time the lowest calculated inactivation was Giardia 0.17-Log, Virus 1.35-Log

The following tasks and procedures will be implemented to prevent reoccurrence of this failure:

- Update Contactor Isolation SOP to include operator visual verification that all isolation valves are either fully close or fully open as commanded.
- Revise and discuss SOP revisions with all staff.
- Add visual reference to valve stem with red and green marks to clear PVC housing indicating fully open and fully closed valve stem positions.
- Pull wire to PLC-45 to provide discreet valve position and fail alarms to SCADA.
- In plant SCADA HMI will generate a warning message when both ozone contactors are in service and the difference between normalized ratios between contactors exceed a predetermined selected setpoint. This alarm will allow operations to detect notably different conditions in disinfection. Since all other parameters are measured and controlled within closed loop controllers, the only parameter left is the flow. The flow will be the main disturbance which will affect the normalized ratio between desired and actual dose achieved. This warning message will be displayed on a pop-up screen with a detailed explanation of the cause and required actions to mitigate the flow unbalance.

Please do not hesitate to contact me if any follow up information is needed.

Regards,



Brian MacDonald
Jacobs
Plant Manager
Twin Oaks Valley WTP

Copies to: Chris Castaing, Operations & Maintenance Manager, San Diego County Water Authority
Dennis Burrell, Regional Manager, Jacobs Engineering

APPENDIX 3

DRINKING WATER NOTIFICATIONS TO CONSUMERS

PROOF OF NOTIFICATION

Name of Water System: _____

Please explain what caused the problem if you have determined what it was and what steps you have taken to correct it. _____

Consumers Notified _____ Yes _____ No

If not, Explain: _____

Date of Notification: _____

On the date of notification set forth above, I served the above referenced document(s) on the consumers by:

_____ Sending a copy through the U.S. Mail, first class, postage prepaid, addressed to each of the resident(s) at the place where the property is situated, pursuant to the California Civil Code. Attach copy of Notice.

_____ Newspaper (if the problem has been corrected). Attach a copy of Notice.

_____ Personally hand-delivering a copy to each of the consumers. Attach a copy of Notice.

_____ Posted on a public bulletin board, that will be seen by each of the consumers (for small, non-community water systems with prior Department approval). Attach copy of Notice.

I hereby declare the foregoing to be true and correct under penalty of perjury.

_____ Date _____ Signature of Person Serving Notice

**** Notice:** Complete this Proof of Notification and return it along with a copy of the notification to the Department within 10 days of posting the notification.

Disclosure: Be advised that the California Health and Safety Code states that any person who knowingly makes a false statement on any report or document submitted for the purpose of compliance with the attached order may be liable for a civil penalty not to exceed five thousand dollars (\$5,000) for each separate violation for each day that violation continues. In addition, the violators may be prosecuted in criminal court and upon conviction, be punished by fine of not more than twenty-five thousand dollars (\$25,000) for each day of violation, or be imprisoned in county jail not to exceed one year or by both the fine and imprisonment.

APPENDIX 4 – NOTIFICATION OF RECEIPT

Citation Number: 05-14-19C-003

Name of Water System: San Diego County Water Authority

System Number: 3710042

Certification

I certify that I am an authorized representative of San Diego County Water Authority and that Citation No. 05-14-19C-003 was received on _____. Further I certify that the Citation has been reviewed by the appropriate management staff of the San Diego County Water Authority and it is clearly understood that Citation No. 05-14-19C-003 contains legally enforceable directives with specific due dates.

Signature of Water System Representative

Date

**THIS FORM MUST BE COMPLETED AND RETURNED TO THE STATE WATER BOARD,
DIVISION OF DRINKING WATER, NO LATER THAN **JUNE 11, 2019.****

Disclosure: Be advised that the California Health and Safety Code, Sections 116725 and 116730 state that any person who knowingly makes any false statement on any report or document submitted for the purpose of compliance with the Safe Drinking Water Act may be liable for, respectively, a civil penalty not to exceed five thousand dollars (\$5,000) for each separate violation or, for continuing violations, for each day that violation continues, or be punished by a fine of not more than \$25,000 for each day of violation, or by imprisonment in the county jail not to exceed one year, or by both the fine and imprisonment.